Title (en)

NITRIDE HIGH-VOLTAGE COMPONENT AND MANUFACTURING METHOD THEREFOR

Title (de)

NITRID-HOCHSPANNUNGSBAUTEIL UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)

COMPOSANT À HAUTE TENSION EN NITRURE ET PROCÉDÉ DE FABRICATION ASSOCIÉ

Publication

EP 2955755 A1 20151216 (EN)

Application

EP 14749251 A 20140106

Priority

- CN 201310049853 A 20130207
- CN 2014070148 W 20140106

Abstract (en)

A high-voltage nitride device which can avoid vertical breakdown and has a high breakdown voltage includes: a silicon substrate; a nitride nucleation layer prepared on the silicon substrate; a nitride buffer layer prepared on the nitride nucleation layer; a nitride channel layer prepared on the nitride buffer layer; a source electrode and a drain electrode, both of which are contacted with the nitride channel layer; a gate electrode, prepared between the source electrode and the drain electrode; and, at least one spatial isolation area, formed between the silicon substrate and the nitride epitaxial layer and below a region between the gate electrode and the drain electrode.

IPC 8 full level

H01L 29/06 (2006.01); **H01L 21/306** (2006.01); **H01L 21/335** (2006.01); **H01L 29/778** (2006.01); H01L 29/10 (2006.01); H01L 29/20 (2006.01); H01L 29/205 (2006.01); H01L 29/78 (2006.01)

CPC (source: EP US)

H01L 21/02381 (2013.01 - US); **H01L 21/02458** (2013.01 - US); **H01L 21/0254** (2013.01 - US); **H01L 21/30612** (2013.01 - US); **H01L 21/3065** (2013.01 - US); **H01L 29/0649** (2013.01 - EP US); **H01L 29/1083** (2013.01 - EP US); **H01L 29/2003** (2013.01 - EP US); **H01L 29/205** (2013.01 - US); **H01L 29/66462** (2013.01 - US); **H01L 29/66522** (2013.01 - EP US); **H01L 29/7787** (2013.01 - EP US); **H01L 29/78** (2013.01 - EP US)

Cited by

EP3975237A4; US11901840B2

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

EP 2955755 A1 20151216; **EP 2955755 A4 20161207**; **EP 2955755 B1 20190306**; CN 103117294 A 20130522; CN 103117294 B 20151125; JP 2016509756 A 20160331; JP 6182794 B2 20170823; KR 101770489 B1 20170822; KR 20150118986 A 20151023; SG 11201506228T A 20150929; US 2015340485 A1 20151126; US 2016365436 A1 20161215; US 9455315 B2 20160927; US 9831333 B2 20171128; WO 2014121668 A1 20140814

DOCDB simple family (application)

EP 14749251 A 20140106; CN 201310049853 A 20130207; CN 2014070148 W 20140106; JP 2015556382 A 20140106; KR 20157024360 A 20140106; SG 11201506228T A 20140106; US 201514820552 A 20150806; US 201615247044 A 20160825